Volunteer Lake Assessment Program Individual Lake Reports

MOUNTAINVIEW LAKE, SUNAPEE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	832	**Max. Depth (m):**	6.7	**Flushing Rate (yr^{-1}):**	1
Surface Area (Ac.):	105	**Mean Depth (m):**	4.1	**P Retention Coef:**	0.69
Shore Length (m):	3,700	**Volume (m^3):**	1,758,000	**Elevation (ft):**	1116

TROPHIC CLASSIFICATION

Year	Trophic class
1978	OLIGOTROPHIC
1992	OLIGOTROPHIC

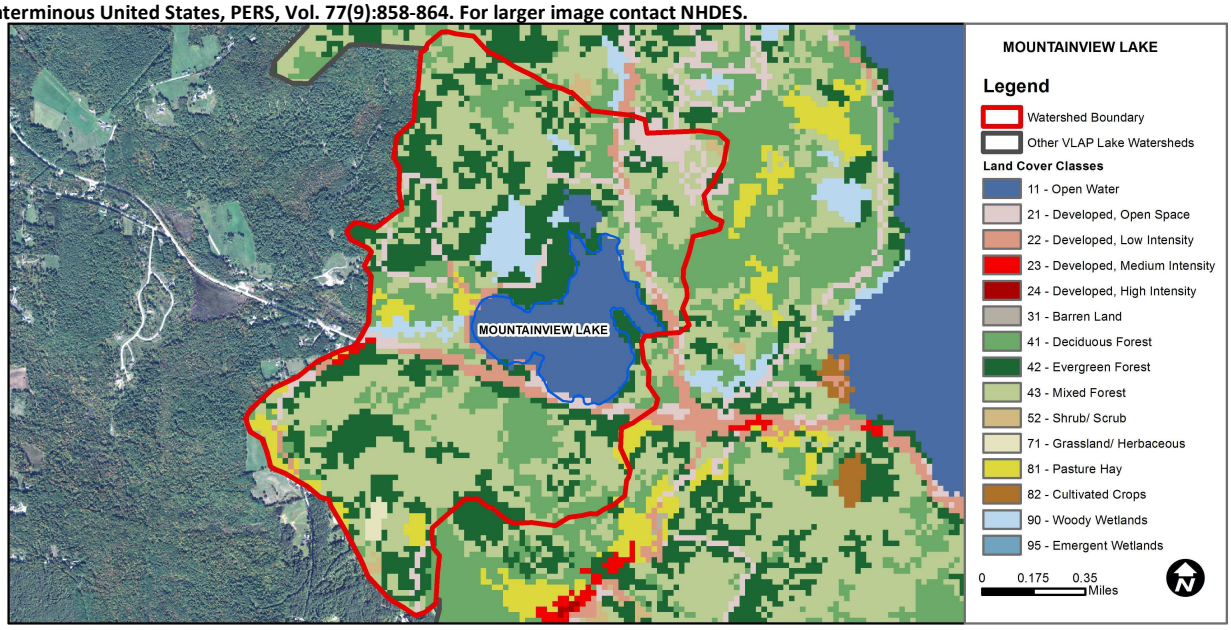
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.

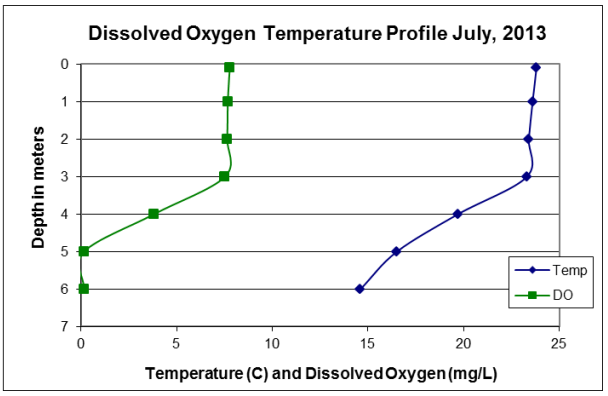


Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	11.7	Barren Land	0.04	Grassland/Herbaceous	0.45
Developed-Open Space	6.05	Deciduous Forest	13.62	Pasture Hay	2.57
Developed-Low Intensity	3.09	Evergreen Forest	23.9	Cultivated Crops	0
Developed-Medium Intensity	0.21	Mixed Forest	34.41	Woody Wetlands	3.09
Developed-High Intensity	0	Shrub-Scrub	0.39	Emergent Wetlands	0

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
MOUNTAINVIEW LAKE, SUNAPEE, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll levels were elevated in July, but had decreased by August. Significant storm events likely contributed phosphorus that resulted in increased algal growth in July. Historical trend analysis indicates highly variable chlorophyll between years.
- **CONDUCTIVITY/CHLORIDE:** Conductivity was elevated at all stations except North Brook and Rt. 103 Inlet. Chloride levels were also slightly elevated, particularly in Hamel Bk at 103. Historical trend analysis indicates relatively stable epilimnetic conductivity with high variability between years.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus was relatively low and below the state median. Hypolimnetic phosphorus was slightly elevated in August and the turbidity was also elevated. Historical trend analysis indicates relatively stable epilimnetic phosphorus with data highly variable between years. Phosphorus levels in Hamel Bk. at 103 were elevated in July following significant storm event. Phosphorus levels were elevated in North Brook in August and lab notes indicates a moderate amount of organic matter which may have contributed to the high level.
- **TRANSPARENCY:** Transparency decreased slightly in August and average transparency decreased in 2013. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- **TURBIDITY:** Turbidity in Hamel Bk. and Hamel Bk. at 103 were slightly elevated in July following significant storm events, and in August due to low flow. Hypolimnetic turbidity was elevated in August, field data note low water levels and lab data note sediment in the sample.
- **PH:** Hypolimnetic and several tributary pH levels were below the critical value of 6.5 8.0 units.
- **RECOMMENDED ACTIONS:** Stormwater runoff from significant storm events in June and July may have transported excess phosphorus to the lake resulting in increased algal growth in July. Water levels were low in August and the hypolimnion sample likely contained bottom sediment. When water levels are low, adjust the hypolimnion sample depth to avoid sediment contamination. Do not sample tributaries that do not have sufficient flow to obtain a sample free of sediment and/or organic matter. Educate watershed residents on ways to reduce stormwater runoff from their properties utilizing DES' "Homeowner's Guide to Stormwater Management".



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Table 1. 2013 Average Water Quality Data for MOUNTAINVIEW LAKE

Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Culvert At 111 Hamel Rd				104.1	8			0.76	6.48
Epilimnion	7.75	4.83	22	105.8	9	2.75	3.20	0.96	6.64
Hypolimnion				111.7	20			4.05	6.10
Hamel Bk At 103			42	232.1	33			2.78	6.85
Hamel Brook			33	184.5	23			2.39	6.42
Mud Pd Brook				98.8	12			1.05	6.52
N Hamel Rd In Lake			21	164.3	15			2.07	6.68
North Brook				43.3	80			1.25	5.86
Outlet				105.4	9			0.74	6.68
Route 103 Inlet				30.4	23			0.73	6.39

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Degrading	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
Conductivity	Stable	Trend not significant; data highly variable.	Transparency	Degrading	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.